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(NASA-TM-84176) DOCUMENTATION FOR THE
MACHINE-READABLE VERSION OF THE FIRST
SANTIAGO-PULKHOV FUNDAMENTAL STARS CATALOGUE
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DOCUMENTATION FOR THE

MACHINE-READABLE VERSION

OF THE FIRST SANTIAGO-PULKOVO

FUNDAMENTAL STARS CATALOGUE

(SPF1 CATALOGUE)

MARCH 1982



DOCUMENTATION FOR THE MACHINE-READABLE VERSION
OF THE
FIRST SANTIAGO-PULKOV FUNDAMENTAL STARS CATALOGUE
(SPF1 CATALOGUE)

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SECTION 1 - INTRODUCTION

The First Santiago-Pulkovo Fundamental Stars Catalogue (*SPF1*) contains right ascension observations of 1043 FK4 stars made during the period 1963 to 1968 with the Repsold Meridian Circle located at Cerro Calán Observatory in Chile. The FK4 stars were observed during series of observations of Southern Reference Stars (SRS) and Bright Stars (BS) international programs. Approximately 30 to 45 FK4 stars were measured during each 2- to 2-1/2-hour series, and included stars observed along the meridian between +41° and -90° in upper culmination and from -90° to -68° in lower culmination. The lower culmination observations are given in a separate table in the source reference; they are included in the second tape file of the computer version.

This document describes the machine-readable version of the *SPF1* catalogue as distributed by the Astronomical Data Center. It is intended to enable users to read and process the computerized catalogue without the problems and guesswork often associated with such a task. The source reference should be consulted for additional details regarding the measurements, instrument characteristics, reductions, construction of the quasi-absolute system of right ascension, and star positions in the catalogue.

SOURCE REFERENCE

Anguita, C., Carrasco, G., Loyola, P., Bedin, V. N., Naumova, A. A.,
Polojentsev, D. D., Polojentseva, T. A., Tavastsherna, K. N. and Zverev,
M. S. 1975, First Santiago-Pulkovo Fundamental Stars Catalogue (*SPF1*),
Publ. Dep. Astronomy, Univ. of Chile, 2 (No. 6) 181.

SECTION 2 - TAPE CONTENTS

A byte-by-byte description of the contents of the catalogue is given in Table 1. Although the upper and lower culmination observations are contained in separate files of the computerized catalogue, the formats are identical and Table 1 applies to both. The suggested format specifications are for FORTRAN formatted read statements and can be modified depending upon individual programming and processing requirements. Since certain data fields are blank where data are missing (as noted in Table 1) some processing requirements will necessitate data transfer to a buffer where the fields can be checked for blanks before proceeding. (In this particular catalogue, the only data field containing blanks is for the quantity $\epsilon_\alpha \cos \delta$, and the field is blank only when the number of observations N is unity; therefore, the data can be read with the FORTRAN format and used for calculations only when $N \neq 1$.) Alternate format specifications are given in parentheses.

Table 1. Tape Contents. SPF 1 Catalogue.

Byte(s)	Units	Suggested Format	Description
1- 7	---	A7 (7A1)	Number assigned to catalogue by the Centre de Données Stellaires, Strasbourg. The four-digit number is followed by a letter "A" (first file or "B" (second file) and the two-digit year of this edition. All records in this catalogue contain 1043A76 or 1043B76.
8	---	I1X	Blank.
9-12	---	I4	Number in the FK4 catalogue (Fricke and Kopff 1963).
13	---	I1X	Blank.
14-15	hours	I2	Right ascension (α) for 1950.0 (approximate).
16	---	I1X	Blank.
17-18	min	I2	α
19	---	I1X	Blank.
20-22	°	I3 (A1, I2)	Declination (δ) for 1950.0 (approximate). Sign always in byte 20.
23	---	I1X	Blank.

Table 1. (continued)

Byte(s)	Units	Suggested Format	Description
24-25	'	I2	δ
26	---	1X	Blank.
27-31	sec	F5.3	Correction to the FK4 right ascension in the instrumental system ($\Delta\alpha_i = \alpha - \alpha_i$) for the mean epoch of the observations. Sign always in byte 27.
32	---	1X	Blank
33-37	sec	F5.3	Correction to the FK4 right ascension in the FK4 system ($\Delta\alpha_{FK4} = \alpha - \alpha_{FK4}$) for the mean epoch of the observations.
38	---	1X	Blank.
39-40	---	I2	Number of observations N . If this number is 1, the following data field is blank.
41	---	1X	Blank.
42-44	sec	F3.3	$\varepsilon_\alpha \cos \delta$. Mean square error of the catalogue position, computed with the deviations of the observations from the mean.
45	---	1X	Blank.
46-49	years	F4.2	Mean epoch of the observations - 1900.

SECTION 3 - TAPE CHARACTERISTICS

The information contained in Table 2 is sufficient for a user to describe the internal and constant characteristics of the machine-readable SPFI files to a computer. Information easily varied from installation to installation, such as block size (physical record length), blocking factor (number of logical records per physical record), total number of blocks, tape density, number of tracks, and internal coding (EBCDIC, ASCII, etc.) is not included. These parameters should always be supplied if secondary copies of the catalogue are transmitted to other users or installations. Parameters for the two files are separated by commas.

Table 2. Tape Characteristics. SPFI Catalogue

NUMBER OF FILES	2
LOGICAL RECORD LENGTH	49*
RECORD FORMAT	FB**
TOTAL NUMBER OF LOGICAL RECORDS	1043, 82

* Same for both files

** Fixed block length (last block may be short)

SECTION 4 - REMARKS, MODIFICATIONS, ACKNOWLEDGMENTS, AND REFERENCES

The SPF1 catalogue was received on magnetic tape from the Centre de Données Stellaires (CDS), Strasbourg. The data had been received on punched cards from the Astronomisches Rechen-Institut, Heidelberg and had been punched from a handwritten version (A. Fresneau, private communication). A check against the published catalogue (Anguita et al. 1975) revealed an extra record in the machine-readable version (FK4 #1121 with only one observation; the observation must have been removed before publication and has been deleted from the file) and one record having an incorrect FK4 number and displaced (this has been corrected), plus several stars whose right ascensions and declinations disagree by 1^m or 1' between the computer file and the published catalogue (these have not been changed since the right ascensions and declinations are only approximate and are not the principal data of the catalogue). The logical record length (LRECL) of the file received (the upper and lower culmination observations were on a single file) was 88 bytes (a card image plus 8-byte allowance for CDS identification number); since bytes 50-88 were always blank, LRECL was changed to 49 bytes to save storage space. The upper and lower culmination tables were separated into two files due to the fact that lower culmination observations are made at lower altitude and are often of lower accuracy than upper culmination observations.

ACKNOWLEDGMENTS

Appreciation is expressed to Dr. A. Fresneau of the CDS, Strasbourg, for preparing a handwritten format description of the CDS tape at my request, and to Dr. A. Gutiérrez-Moreno for sending the University of Chile publication required for comparison purposes.

REFERENCES

- Anguita, C., Carrasco, G., Loyola, P., Bedin, V. N., Naumova, A. A.,
Polojentsev, D. D., Polojentseva, T. A., Tavastsherna, K. N. and Zverev,
M. S. 1975, First Santiago-Pulkovo Fundamental Stars Catalogue (SPF 1),
Publ. Dep. Astronomy, Univ. of Chile, 2 (No. 6) 181.
- Fricke, W. and Kopff, A. 1963, Fourth Fundamental Katalog (FK4), Veröff.
Astron. Rechen-Inst. Heidelberg, No. 10.

SECTION 5 - SAMPLE LISTING

The sample listing given on the following pages contains logical data records exactly as they are recorded on the tape. Groups of records from the beginning and end of each file are illustrated. The beginning of each record and bytes within the record are indicated by the column heading index across the top of each page (digits read vertically).

LIST OF RECORDS FOR ONTARIO FISHES

TAPES FILE NAME: SANTIAGO-2116WQ 1 REC

RECORDS	1 TO 30
TAPE FILE	23
RECORD LENGTH	4-9 BYTES
INDIRECT RECORD	TIME/100

RECORD	1	1043A76	1	00 05	+28 48	-0013	+0002	06 010	6504
RECORD	2	1043A76	3	00 06	-46 01	-0052	-0057	06 009	6594
RECORD	3	1043A76	5	00 09	-28 04	-0015	-0007	03 009	6603
RECORD	4	1043A76	6	00 09	-35 24	+0034	+0028	05 008	6522
RECORD	5	1043A76	7	00 10	+19 54	-0046	-0043	03 019	6425
RECORD	6	1043A76	10	00 17	-65 09	-0046	+0002	05 004	6444
RECORD	7	1043A76	11	00 23	-77 32	-0201	-0113	17 005	6523
RECORD	8	1043A76	13	00 27	-04 13	+0012	+0007	07 007	6526
RECORD	9	1043A76	14	00 27	-24 03	-0055	-0052	01 6350	
RECORD	10	1043A76	20	00 36	+30 35	-0037	-0015	07 004	6478
RECORD	11	1043A76	23	00 41	-57 44	-0009	+0007	13 006	6497
RECORD	12	1043A76	26	00 41	-38 41	+0064	+0054	02 010	6527
RECORD	13	1043A76	27	00 48	+23 59	-0018	-0007	06 010	6463
RECORD	14	1043A76	28	00 46	+07 16	+0018	+0016	02 008	6426
RECORD	15	1043A76	30	00 47	-10 54	-0002	-0007	01 6572	
RECORD	16	1043A76	31	00 46	-75 11	-0043	+0045	03 025	6622
RECORD	17	1043A76	31	00 53	+38 13	-0014	+0005	03 017	6599
RECORD	18	1043A76	34	00 53	-69 47	+0025	+0098	02 018	6527
RECORD	19	1043A76	35	00 56	-29 37	-0004	+0003	03 015	6564
RECORD	20	1043A76	37	01 01	+01 05	+0037	+0031	02 022	6513
RECORD	21	1043A76	39	01 05	-62 02	-0048	-0016	06 007	6505
RECORD	22	1043A76	40	01 06	-10 26	-0011	-0016	01 0553	
RECORD	23	1043A76	42	01 06	+35 21	-0007	-0066	01 6353	
RECORD	24	1043A76	43	01 08	+29 49	-0024	-0010	04 013	6491
RECORD	25	1043A76	44	01 10	-38 07	+0014	+0004	02 004	6512
RECORD	26	1043A76	45	01 16	+27 00	-0016	-0003	05 013	6614
RECORD	27	1043A76	47	01 21	-08 26	+0032	+0027	01 0877	
RECORD	28	1043A76	49	01 26	-43 34	+0027	+0020	05 014	6448'
RECORD	29	1043A76	50	01 28	+15 05	-0016	-0013	02 004	6427
RECORD	30	1043A76	53	01 33	-70 45	-0174	-0087	02 009	6558

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TAPE FILE NAME: SANTIAGO-PULKOVY - UC
RECORDS 1014 TO 1043

REF FILE 2

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RECORD	10.14	1043A76	1612	23	-20	22	-21	12	-0015	03	013	0530
RECORD	10.15	1043A76	1613	23	-22	*32	06	+0006	+0027	03	001	6426
RECORD	10.16	1043A76	1615	23	26	+15	44	-0030	-0026	02	006	6352
RECORD	10.17	1043A76	1616	23	32	*39	57	-0005	+0013	10	008	6500
RECORD	10.18	1043A76	1617	23	32	-42	53	+0047	+0038	01	0483	
RECORD	10.19	1043A76	1618	23	37	-32	20	+0002	+0003	05	012	6518
RECORD	10.20	1043A76	1620	23	39	*01	30	+0007	+0003	08	006	6484
RECORD	10.21	1043A76	1621	23	41	-18	33	+0001	-0003	12	005	6516
RECORD	10.22	1043A76	1623	23	45	-03	02	+0013	+0008	11	006	6473
RECORD	10.23	1043A76	1624	23	46	-21	53	-0012	-0012	03	008	6502
RECORD	10.24	1043A76	1625	23	50	*10	40	-0021	-0019	04	010	6523
RECORD	10.25	1043A76	1626	23	52	-40	34	+0010	-0002	11	008	6488
RECORD	10.26	1043A76	1628	21	54	+22	22	-0016	-0004	11	003	6520
RECORD	10.27	1043A76	1629	23	55	*24	51	-0016	-0003	04	001	6466
RECORD	10.28	1043A76	1655	00	13	-88	38	+0074	+0103	03	007	6614
RECORD	10.29	1043A76	1656	02	28	-85	56	-0068	+0000	06	005	6560
RECORD	10.33	1043A76	1657	02	38	-88	22	+0709	+0759	07	009	6638
RECORD	10.34	1043A76	1658	04	28	-81	00	+0038	+0132	06	007	6558
RECORD	10.32	1043A76	1659	05	39	-d4	48	+0002	+0087	16	004	6512
RECORD	10.33	1043A76	1660	05	53	-35	55	-0258	-0177	11	006	6546
RECORD	10.34	1043A76	1661	07	05	-86	57	-0130	-0021	10	006	6351
RECORD	10.35	1043A76	1662	07	13	-39	41	-0549	-0401	01	6517	
RECORD	10.36	1043A76	1663	10	34	-85	49	-0120	+0019	23	004	6464
RECORD	10.37	1043A76	1664	10	59	-84	19	-0208	-0091	12	005	6433
RECORD	10.33	1043A76	1665	13	32	-85	31	-0540	-0443	08	006	6491
RECORD	10.39	1043A76	1666	15	31	-84	13	-0140	-0058	11	006	6472
RECORD	10.40	1043A76	1667	19	46	-81	28	-0046	+0029	09	004	6442
RECORD	10.41	1043A76	1668	20	31	-84	14	-0125	-0063	09	005	6435
RECORD	10.42	1043A76	1669	22	21	-89	04	+1581	+1600	01	6657	
RECORD	10.43	1043A76	1670	22	22	-86	13	-0021	+0042	06	007	6432

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LISTINGS OF RECORDS PROCESSED

TAP FILE NAME: SANTIAGO-PULKOVKO I LC

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RECORD LENGTH

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RECORD	1	1043B76	11	00	23	-77	32	-0188	-0094	26	004	6363
RECORD	2	1043B76	31	00	46	-75	11	-0024	+0082	10	010	6546
RECORD	2	1043B76	34	00	53	-69	47	+0046	+0138	01	6620	
RECORD	4	1043B76	53	01	33	-78	45	-0074	+0025	12	005	6558
RECORD	5	1043B76	90	02	32	-79	19	-0178	-0078	10	005	6585
RECORD	6	1043B76	113	03	02	-72	05	-0094	+0011	13	007	6549
RECORD	7	1043B76	146	03	97	-74	23	-0190	-0081	14	004	6516
RECORD	8	1043B76	166	04	21	-80	19	-0085	+0006	04	007	6521
RECORD	9	1043B76	177	04	93	-71	01	-0135	-0038	03	008	6509
RECORD	10	1043B76	214	05	33	-76	22	-0150	-0051	06	006	6508
RECORD	11	1043B76	239	06	11	-74	94	-0064	+0042	06	008	6531
RECORD	12	1043B76	264	06	44	-80	45	-0074	+0022	07	009	6520
RECORD	13	1043B76	267	06	52	-70	54	-0156	-0056	08	011	6513
RECORD	14	1043B76	297	07	42	-72	29	-0039	+0079	05	008	6502
RECORD	15	1043B76	318	08	22	-77	19	-0058	+0066	05	014	6469
RECORD	16	1043B76	311	08	43	-70	46	-0218	-0101	05	008	6457
RECORD	17	1043B76	344	09	12	-69	30	-0124	-0027	07	009	6455
RECORD	18	1043B76	362	09	31	-72	51	-0159	-0057	06	013	6412
RECORD	19	1043B76	385	10	12	-69	47	-0024	+0053	05	015	6398
RECORD	20	1043B76	391	10	23	-73	46	-0066	+0021	05	008	6460
RECORD	21	1043B76	401	10	34	-78	20	+0001	+0070	04	008	6510
RECORD	22	1043B76	411	10	45	-80	16	+0079	+0139	05	003	6445
RECORD	23	1043B75	438	11	35	-75	37	-0006	+0088	10	003	6469
RECORD	24	1043B76	455	12	15	-79	02	-0060	+0034	11	005	6499
RECORD	25	1043B76	469	12	29	-71	51	-0145	-0041	16	004	6511
RECORD	26	1043B76	474	12	34	-63	51	-0091	+0002	14	006	6519
RECORD	27	1043B76	487	12	58	-71	16	-0166	-0058	11	008	6486
RECORD	28	1043B76	503	13	34	-75	25	-0184	-0054	01	6677	
RECORD	29	1043B76	542	14	41	-78	50	-0132	+0002	14	006	6557
RECORD	30	1043B76	560	15	15	-68	29	-0105	-0001	10	006	6513

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